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DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Docket No. AD14-14-000

Price Formation in Energy and Ancillary Services Markets Operated by Regional
Transmission Organizations and Independent System Operators

Take notice that the Federal Energy Regulatory Commission (Commission) is initiating a proceeding in the above-captioned docket to evaluate issues regarding price formation in the energy and ancillary services markets operated by Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs).

On September 25, 2013, the Commission held a technical conference to consider how current centralized capacity market rules and structures in the eastern RTO/ISO regions are supporting the procurement and retention of resources necessary to meet future reliability and operational needs.¹ At that conference and in subsequent comments,

¹ Technical Conference on Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators, September 25, 2013, Docket No. AD13-7-000. The Commission received over 1,000 pages of post-technical

a number of parties suggested that the Commission should not assess capacity markets in isolation, noting that the energy and ancillary services markets constitute significant revenue streams for supply resources participating in the organized capacity markets. These commenters requested that the Commission also evaluate whether the energy and ancillary services markets are being operated in a way that produces accurate price signals. Similar concerns were raised at a technical conference held on April 1, 2014, regarding market performance during the 2013-2014 winter.² At that conference and in subsequent comments, market participants again expressed concerns regarding price formation across the energy and ancillary services markets of various RTOs/ISOs, with some offering specific examples of price formation issues they experienced during extreme weather events this past winter.³

Ideally, the locational energy market prices in the energy and ancillary services markets would reflect the true marginal cost of production, taking into account all physical system constraints, and these prices would fully compensate all resources for the

conference comments and continues to evaluate what steps may be appropriate to take with respect to capacity markets in light of those comments.

² Technical Conference on Winter 2013-2014 Operations and Market Performance in Regional Transmission Organizations and Independent System Operators, April 1, 2014, Docket No. AD14-8-000. *See* Technical Conference on Winter 2013-2014 Operations and Market Performance in Regional Transmission Organizations and Independent System Operators, Transcript (April 1, 2014), Statements of Michael Kormos at 113-115, Peter Brandien at 116-119, Wes Yeomans at 121-122, Bruce Rew at 125, and Brad Bouillon at 125-126.

³ *See* Comments of the Electric Power Supply Association, Winter 2013-2014 Operations and Market Performance in Regional Transmission Organizations and Independent System Operators, Docket No. AD14-8-000 (filed May 14, 2014).

variable cost of providing service. The RTO/ISO would not need to commit any additional resources beyond those resources scheduled economically. Further, load would reduce consumption in response to price signals such that market prices would reflect the value of electricity consumption without the need to administratively curtail load.

In reality, RTO/ISO energy and ancillary services market outcomes are impacted by a number of technical and operational considerations.⁴ For example, technical limitations in the market software prevent RTOs/ISOs from fully modeling all of the system's physical constraints, such as a voltage constraint. If physical constraints are not accurately reflected in the system model used to clear the market, the market software outcome may not clear the resources needed to resolve all such constraints. In such a case, system operators may have to manually dispatch a resource that is needed to resolve a constraint (and manually re-dispatch or de-commit other resources), with resulting energy and ancillary service prices not reflecting the marginal cost of production. In addition, market clearing prices do not typically reflect certain components of a resource's actual operating costs (e.g., startup costs) or operating limits (e.g. minimum run times). As a result, RTOs/ISOs provide make-whole payments, or uplift payments, to resources whose commitment and dispatch by an RTO/ISO resulted in a shortfall between the resource's offer and the revenue earned through market clearing prices.

⁴ Although the discussion herein focuses on RTO/ISO markets, similar technical and operational limitations impact the efficient commitment of resources by electric utilities operating in other market structures, such as vertically integrated utilities.

Further, demand is largely price insensitive, requiring RTOs/ISOs to set market price based on administrative rules during periods of scarcity. These limitations are to some extent inherent in the complexity of the electric system and the tools available today to maintain reliable operations, and we are unlikely to be able to fully address these issues for the foreseeable future.⁵

Notwithstanding the foregoing technical limitations and operational realities, the Commission believes there may be opportunities for RTOs/ISOs to improve the energy and ancillary service price formation process. To that end, the Commission directs staff to convene workshops as necessary to commence a discussion with industry on the existing market rules and operational practices related to the following topics:

- **Use of uplift payments:** Use of uplift payments can undermine the market's ability to send actionable price signals. Sustained patterns of specific resources receiving a large proportion of uplift payments over long periods of time raise additional concerns that those resources are providing a service that should be priced in the market or opened to competition.
- **Offer price mitigation and offer price caps:** All RTOs/ISOs have protocols that endeavor to identify resources with market power and ensure that such resources bid in a manner consistent with their marginal cost. As a backstop to offer price mitigation, RTOs/ISOs also employ offer price caps that are

⁵ Other efforts, like staff's annual meeting with RTO/ISO operations staff and the annual market software conference, are intended to make progress on these longer term issues. See <http://www.ferc.gov/industries/electric/indus-act/market-planning.asp>.

designed to be consistent with scarcity and shortage pricing rules. These protocols require that the RTO/ISO's measure of marginal cost be accurate and allow a resource to fully reflect its marginal cost in its bid. To the extent existing rules on marginal cost bidding do not provide for this, bids and resulting energy and ancillary service prices may be artificially low.

- **Scarcity and shortage pricing:** All RTOs/ISOs have tariff provisions governing operational actions (e.g., dispatching emergency demand response, voltage reductions, etc.) to manage operating reserves as they approach a reserve deficiency. These actions often are tied to administrative pricing rules designed to reflect degrees of scarcity in the energy and ancillary services markets. In addition, in the event of an operating reserve shortage, all RTOs/ISOs have adopted separate administrative pricing mechanisms designed to set prices that reflect the economic value of scarcity. To the extent that actions taken to avoid reserve deficiencies are not priced appropriately or not priced in a manner consistent with the prices set during a reserve deficiency, the price signals sent when the system is tight will not incent appropriate short- and long-term actions by resources and loads.
- **Operator actions that affect prices:** RTO/ISO operators regularly commit resources that are not economic to address reliability issues or un-modeled system constraints. Some activity may be necessary to maintain system reliability and security. However, to the extent RTOs/ISOs regularly commit

excess resources, such actions may artificially suppress energy and ancillary service prices or otherwise interfere with price formation.

The Commission directs its staff to engage in outreach and, as appropriate, convene workshops and technical conferences to explore improvements to market designs and operational practices in the areas identified above, as well as other topics raised in discussions with RTOs/ISOs and market participants. The Commission anticipates that the first workshop will explore the topic of uplift in detail, while also providing an opportunity to begin a discussion on the remaining topics identified above. Additional workshops will be announced in the coming months on other price formation topics. To the extent practicable, the Commission may release staff analysis of various topics to help guide the workshop discussions. Based on information gathered by staff, the Commission may take action regarding the foregoing or other issues in future orders.

FOR FURTHER INFORMATION PLEASE CONTACT INDIVIDUALS IDENTIFIED
FOR EACH TOPIC:

Use of uplift

William Sauer

Office of Energy Policy and Innovation

Federal Energy Regulatory Commission

888 First Street, NE

Washington, DC 20426

(202) 502-6639

william.sauer@ferc.gov

Offer price mitigation, offer price caps and operator actions

Emma Nicholson

Office of Energy Policy and Innovation

Federal Energy Regulatory Commission

888 First Street, NE

Washington, DC 20426

(202) 502-8846

emma.nicholson@ferc.gov

Scarcity/shortage pricing

Robert Hellrich-Dawson

Office of Energy Policy and Innovation

Federal Energy Regulatory Commission

888 First Street, NE

Washington, DC 20426

(202) 502-6360

bob.hellrich-dawson@ferc.gov

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Kimberly D. Bose,
Secretary.

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